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ARL 03-83

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Amendments to the Claims:

This listing of Claims will replace all prior versions and listings of Claims in the Application.

Listing of Claims:

Please Amend the Claims as Follows:

Claims 1-12 (Cancelled).

Claim 13 (currently amended): A multilayer structure, comprising:

a silicon based substrate; and

an epitaxial Cd_{1-x}Zn_xX_xX'_{1-x} film grown on the silicon based substrate, where X is a chalcogenide selected from the group consisting of S and Se; X' is a higher atomic number chalcogenide relative to X and X' is selected from the group consisting of S, Se and Te; x is a number greater than zero and less than 1; and z is a number greater than or equal to zero and less than one;

~~The multilayer structure of claim 1, further comprising~~

~~a Hg_{1-y}Cd_yTe layer grown on the Cd_{1-x}Zn_xX_xX'_{1-x} film, the Hg_{1-y}Cd_yTe layer being substantially lattice matched to the Cd_{1-x}Zn_xX_xX'_{1-x} film.~~

Claim 14 (original): The multilayer structure of claim 13, wherein X is Se and X' is Te.

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Claim 15 (original): The multilayer structure of claim 14, wherein $x+z$ is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claim 16 (original): The multilayer structure of claim 13, wherein z is zero.

Claim 17 (original): The multilayer structure of claim 16, wherein X is Se and X' is Te.

Claim 18 (original): The multilayer structure of claim 16, wherein x is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claims 19-24 (cancelled).

Claim 25 (currently amended): A $Cd_{1-x}Zn_xSe_xTe_{1-x}$ film grown by molecular beam epitaxy on a silicon based substrate, where x is a number between zero and one inclusive and z is greater than zero and less than one; having an overlayer of $Hg_{1-y}Cd_yTe$ thereon The $Cd_{1-x}Zn_xSe_xTe_{1-x}$ film of claim 24, wherein the $Cd_{1-x}Zn_xSe_xTe_{1-x}$ film is substantially lattice matched to the overlayer of $Hg_{1-y}Cd_yTe$.

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Claim 26 (currently amended): The film of claim 24 25, wherein x+z is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claims 27-31 (cancelled).

Claim 32 (currently amended): A CdS_xTe_{1-x} film grown by molecular beam epitaxy on a silicon based substrate, where x is a number between 0 and 1 inclusive, having an overlayer of Hg_{1-y}Cd_yTe thereon The CdS_xTe_{1-x} film of claim 31, wherein the CdS_xTe_{1-x} film is substantially lattice matched to the overlayer of Hg_{1-y}Cd_yTe.

Claim 33 (currently amended): The film of claim 34 32, wherein x is between 0.01 and 0.08 and y is between 0.15 and 0.35.

Claim 34 (cancelled).

Claims 35-68 (canceled).

Claim 69 (new): A Cd₉₇Zn₀₃Se₀₁Te₉₉ film grown on a single crystal silicon (2 1 1) oriented based substrate, having an overlayer of Hg₇₈Cd₂₂Te thereon, wherein the Cd₉₇Zn₀₃Se₀₁Te₉₉ film is substantially lattice matched to the overlayer of Hg₇₈Cd₂₂Te.